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ABSTRACT

This chapter describes the nature of bilingual education for Hispanics of Mexican origin (Chicanos), outlines successful and unsuccessful classroom approaches to bilingual education, and proposes a research agenda for the future. Four principal approaches have been used in observational studies of language use in bilingual classrooms, including examining the process in which two languages are used with bilingual children; the relationship of process to context, for example, distribution of language use in different program models; the relationship of process to process, for example, how certain teacher behaviors affect the responses of students; and the relationship of process to product, in which effective teaching behaviors are identified in relationship to language use and their effect in promoting student achievement. Research concerning classroom process with respect to bilingual and second language instruction reveals that the selection of a site and community in which research will be conducted is a critical variable; there are many classrooms for Chicanos that use the label bilingual but do not differ significantly from regular classrooms; border communities function differently from other communities in their expectations for language use outside the classroom; and individual schools vary a great deal in the extent to which they create an atmosphere of positive expectations for achievement. It has been found that effective bilingual classrooms promote a high degree of student involvement, contextualize classroom discourse, and integrate students' culture in the curriculum. Future research should focus on applying traditional and ethnographic techniques concurrently to provide a more complete picture of the classroom and to explore individual ability and attitude and their interaction in a variety of classroom processes. Contains 100 references. (LP)

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Chapter 5

Promoting School Success for Chicanos: The View from Inside the Bilingual Classroom

Barbara J. Merino

The Hispanic population varies along several dimensions that can have clear implications for its rate of success in school. Although the majority of the Hispanic population is Mexican in origin, many come from Puerto Rico, Cuba, and Central or South America (US Bureau of the Census, 1982). For each group, there has been a somewhat different tradition of immigration. For many Mexicans and Puerto Ricans, immigration is viewed as temporary. For others (e.g., Cubans), immigration is seen as a necessary, permanent step. Hispanics also differ by level of education in the home country. Many Mexican immigrants come from rural backgrounds, with low levels of education in Mexico; Cubans and to a lesser degree Central Americans have typically had higher levels of education. Many Hispanics in the US have lived there for generations. Although some Hispanics speak English fluently when they arrive in school, the unifying characteristic for most is the Spanish language. Eleven million of the close to 15 million Hispanics counted by the 1980 census reported speaking Spanish at home (Lopez, 1982). Most (93 per cent) of Hispanic adults report that Spanish was their primary language when they grew up (US Bureau of the Census, 1982) and only 14 per cent of all Hispanics in the United States report having an English language background (Brown, Rosen, Hill and Olivas, 1980).

The purpose of this chapter is to describe the nature of education for Hispanics of Mexican origin (i.e., Chicanos), as seen from inside the classroom and to outline successful and unsuccessful approaches as well as to propose a research agenda for the future. Almost all of this existing research focuses on the Chicano as a second language learner. First, I will briefly discuss programmatic alternatives for instruction. Second, I will focus on research about how classrooms function with respect to bilingual and second language instruction. Finally, I will explore the relation of the classroom process to schools and their communities and conclude with the implications of classroom process research for other researchers and policy makers.

Programmatic Alternatives for Instruction: Bilingual Education and Structured Immersion

In North America, two principal program models have been used in designing instruction for children learning a second language: structured immersion and bilingual education. For many researchers, both of these models constitute variations on bilingual education, broadly defined as

> schooling provided fully or partly in the second language with the object of making students proficient in the second language while, at the same time, maintaining and developing their proficiency in the first language and fully guaranteeing their educational development. (Stern, 1975, p. 1)

In the United States, however, bilingual education has been legally defined as

> the use of two languages, one of which is English, as mediums of instruction for the same pupil population in a well organized program which encompasses part or all of the curriculum and includes the study of the history and culture associated with the mother tongue. (Bratt-Paulston, 1980, p. 8)

In operational terms, structured immersion as implemented in Canada to service the needs of English speakers learning French, conforms most to the first definition. Instruction often begins in the second language, with a gradual introduction of the first around the second or third grade (Lambert and Tucker, 1972). Many variations, however, of the model operate in the Canadian context and some programs, sometimes labelled partial immersion, use both languages as mediums of instruction (Swain, 1984).

In the United States, a wide variety of program models also operate. The most common approach, however, is to provide some instruction in both languages from the beginning, with a much quicker transition to instruction wholly in the second language in the later years of schooling. While these definitions very broadly outline the framework in which these programs operate, they do little to concretely operationalize how languages are actually used inside the classroom. In fact, there is wide consensus among practitioners and researchers of bilingual education in the United States that in practice these programs are best defined administratively in fiscal terms. That is, they are seen as programs that receive a certain type of funding, because many seldom, if ever, use the primary language of the children they serve (Wong-Fillmore, Ammon, McLaughlin and Ammon, 1983). Moreover, even within bilingual programs that actually use two languages the distribution patterns may vary a great deal (Legarreta, 1977). Recently, an interest has developed in adopting the structured immersion Canadian model in implementing instruction for language minority students in the United States (Genesee, 1985; Pena-Hughes and Solis, 1982). In the implementation of this model, however, US policy makers have not generally envisioned a systematic effort to continue development of first language skills as in the Canadian model, with a resurgence of instruction in the first language (L1) after the second or third year of schooling. Rather, the US model of structured immersion is perceived as early instruction in the second language (L2), English,

with some allowance for instruction in the primary language in the beginning but no instruction after the first few years (Baker and de Kanter, 1981). For this reason, and for others — most notably the dramatically different social context in which the US and Canadian models operate — many educators in the United States have questioned the viability of this model for the education of language minority students in the United Sates (Hernandez-Chavez, 1984).

Classroom Process Studies

Applied research on bilingual education has shown mixed effects for its effectiveness, although a recent meta-analysis of the most robust evaluation studies showed small but positive effects for bilingual education (Willig, 1985). Moreover, so-called primary research (i.e., research that tests the underlying assumptions about bilingual education, such as transfer of learning) clearly supports the viability of bilingual education (Hakuta and Snow, 1986). Structured immersion as an educational alternative has not been studied systematically in the United States, although a five-year study comparing structured immersion and early, late-exit bilingual programs is currently in its final phase (Ramirez, Wolfson, Tallmadge and Merino, 1984). To date, very few studies on bilingual education actually include observational data of program implementation in the classroom. In fact, of the evaluation studies reviewed by Willig, only one (Legarreta, 1979) collected classroom observation data on instruction.

In searching for effective program models for teaching language minority children, recent research has turned away from simple comparisons of students' achievement under different treatments. This shift has come from a rediscovery of a truism in educational research that before program effects can be analyzed, the program treatment must be defined operationally and observed systematically to insure that it is in place (Baker and de Kanter, 1981; Willig, 1985; Wong-Fillmore and Valadez, 1986). Four principal approaches have been used in observational studies of language use in bilingual classrooms. Borrowing from the research paradigms of the teacher effectiveness literature (Dunkin and Biddle, 1974), researchers have focused on: 1) a description of the process in which the two languages are used with bilingual children (Schulz, 1975); 2) the relationship of process to context, for example, distribution of language use in different program models (Legarreta, 1977); 3) the relationship of process to process, for example, how the use of certain behaviors by teachers (e.g., feedback) affect the responses of students (Chaudron, 1977; Nystrom, 1983); 4) the relationship of process to product, in which effective teaching behaviors are identified in relationship to language use and their effect in promoting student achievement (Legarreta, 1979; Politzer, 1980; Ramirez and Stromquist, 1979).

A variety of approaches for data collection have been used in these studies. One approach, borrowing from the tradition of teacher effectiveness studies, (Dunkin and Biddle, 1974), relies on quantifying classroom behavior through the tallying of relevant behaviors. A large number of classroom observation instruments have been developed to record classroom process in second language classrooms. Long (1983) and Chaudron (1988) provide useful syntheses of these instruments and their assumptions. Table 5.1 illustrates some of the principal

Table 5.1 Classification of instruments to study classroom interaction in Chicanos

Authors	Type of recording procedure	Recording technique	Focus and sample item
Legarreta, 1977	Sign	Real time	Pedagogical, affective; 'teacher warms'
US Commission on Civil Rights, 1973	Sign	Real time	Pedagogical, affective, cognitive; 'teacher uses student ideas'
Laosa, 1979	Sign	Real time	Affective; student focus — types of feedback; 'teacher disapproves'
Politzer, 1980	Category	Video	Pedagogical; 'questioning-guided response'
Hernandez, 1983	Category	Video	Discourse; 'opening moves'
Schinke-Llano, 1983	Sign	Audio	Pedagogical; 'instructional, managerial, disciplinary'
Ramirez, Yuen, Ramey and Merino, 1986	Category	Audio	Pedagogical; 'procedural explanation'
Ramirez and Merino, 1986	Sign	Real time	Pedagogical; 'referential questions'
Wong-Fillmore, Ammon, McLaughlin and Ammon, 1983	Rating	Audio	Pedagogical, affective; 'teacher asks questions that require extended response'
Hoover, Calfee, Mace-Matluck, 1984a	Sign	Real time	Pedagogical, content; 'instructional focus-letter sound unit'

approaches used in this type of classroom research. Basically, these instruments differ in terms of their unit of analyses: (1) an arbitrary time unit (three seconds and so on), also known as a sign system, (2) or an analytical unit (an exchange, a move), also labelled a category system. A sign system records a behavior if it occurs within a specified time period. Thus for example, Legarreta (1977) recorded classroom behavior every three seconds, noting the language being used, who was talking, who was being addressed, and the pedagogical function of the utterance, commanding and so on. In a category system, every behavior is classified. Thus, Politzer (1980) and his associates Ramirez and Stromquist (1979) and Merino, Politzer and Ramirez (1979) classified every behavior as it occurred according to a system that generated categories based on teacher effectiveness research and L2 acquisition theory. Using videotapes of structured lessons, teacher and student behaviors were classified into one of sixteen categories. The principal advantage of a category system is that it is more likely to record every behavior that occurs. It tends, however, to overemphasize those behaviors that are very frequent and of short duration. The principal advantage of a sign system is that it should be more representative of the different types of behaviors that occur. A sign system, however, assumes that the amount of time a behavior is in place is important and is thus more likely to miss a very rare type of behavior that may have a lot of influence simply because it is appropriate. For example, the author once observed a limited-English-proficient 9-year-old child say, 'Oh, now I get it', after hearing a teacher's explanation of the plural system in English. This kind of event is rare and some observation systems might tally it very

simplistically as a student initiation or student comment, when in fact it reveals that for this child that teacher's grammatical explanation was very relevant.

An intrinsic weakness of these systems is that the behaviors observed tend to be 'low inference', that is behaviors that are readily identified and thus more likely to yield high interrater reliabilities. Another disadvantage is that the systems tend to be formulated on the basis of theoretical constructs held by the researcher. These may or may not be relevant and tend to ignore the participants' perceptions of events. An approach that addresses these concerns is the use of ethnography where an individual classroom is studied in detail and over long periods of time by a participant/observer (Trueba and Wright, 1981; van Lier, 1988). This approach has generated fundamental reanalyses of classroom discourse, particularly among minority populations. For example, Phillips (1972) studying Warm Springs Indians has shown that the native American students had different rates of participation in classroom discourse because they were operating under a different set of rules than were the Anglo teachers. Self nomination in a large group, when the teacher was leading the discussion, was simply inappropriate behavior, which violated community mores for participation in large group discussion. An inherent disadvantage of ethnographic research, however, is one of selection. The process by which the ethnographer selects what is reported is not always well articulated and may lead to a bias for the researcher's preconceived assumptions about what is going on.

Process Studies

Studies that focus on describing classroom dynamics have been termed 'process' studies. Much of the early work on observation of bilingual classrooms used a case study approach in which language use was simply described in one classroom or program. For example, Mackey (1972) described language use patterns in the John F. Kennedy School in Berlin. In this prestigious, private school the ratio of native German and English speakers was closely monitored, and bilingual teachers were allowed to switch back and forth from English and German as they saw it necessary to facilitate instruction. This approach labelled 'concurrent translation' was found to be highly effective in promoting balanced bilingualism and high levels of achievement. This approach served as the model of preference in bilingual programs in the United States. It soon became apparent, however, that this approach was not so successful in the context of public schools, with children from families with few resources. Moreover, in United States public schools it has not been possible to ensure a minimal proficiency in the teachers, and the numbers of children from each language group vary greatly from year to year. Schulz (1975), studying a bilingual classroom in Boston through an ethnographic approach, found that teachers tended to favor the use of English, using Spanish principally to control behavior. Students and teachers perceived that it was better not to use Spanish, and most complex academic instruction was conducted in English. Furthermore, some studies have shown that in fact, when using a concurrent approach, students sometimes tune out the teacher when their primary language is not being used (Wong-Fillmore *et al.*, 1983). This type of research is particularly effective in identifying further lines of inquiry for later more controlled studies, where specified systems of language use might be manipulated.

Table 5.2 Language of instruction: process/context studies

Study	Grade	*N* (teachers)	Context	Results
Legarreta, 1977	K	5 teachers (4 concurrent 1 alternate day)	Bilingual	L1 use ranged from 16–47%; 1 alternate day teacher achieved 50%
Schulz, 1975	K	1		70% English; 30% Spanish
Ramirez, Yuen, Ramey and Merino, 1986	K-3rd	13 K 11 Gr 1 7 K 11 Gr 3	Bi EE Imm Bi EE Imm LE Bi LE Bi	Imm = 93–100% English LE K = 66% L1 EE K = 36% L1
Ramirez and Merino, in press	1st/2nd	37	Immersion Early	Imm = 98% English EE Bi = 68% English in Gr. 1 75% English in Gr. 2 LE Bi = 22% English in Gr. 1 41% English in Gr. 2
Strong, 1986	3rd and 5th	10 10	Bilingual v submersion	Bi = 47% English; 6% Spanish Sub = 53% English
Nystrom, Stringfield and Miron, 1984	Jr and Sr High	3 5	Bilingual ESL	L1 and L2 used equally in both program settings
Fisher, *et al.*, 1981; Tikunoff and Vasquez-Faria, 1982	Elem	58 Elem.	Exemplary bilingual teachers	60% English 20% L1 5% Mixed

Note: EE = Early Exit; LE = Late Exit; Bi = Bilingual; K = Kindergarten; Imm = Immersion
L1 = Spanish; L2 = English

Process/Context Studies

Studies that attempt to describe classroom process in relation to a particular context, program models, curriculum area, and so on have been labelled 'process/context' studies. The language of instruction — that is the distribution of language use in relationship to the program model — was first studied systematically by Legarreta (1977), who observed five bilingual kindergarten classrooms in California in the early 1970s with a real time observation instrument. She found that teachers using a concurrent translation model often favored English, with many of them speaking English 80 per cent of the time. When the languages, however, were separated by day, with instruction provided in one language one day and in the other the next (the so-called alternate day model used by one teacher), the language use distribution was more nearly equal. It should be noted that one teacher using the concurrent translation approach was also able to effect a near equal distribution of languages. Table 5.2 gives an overview of other studies which have investigated the patterns of language use in bilingual classrooms.

Sapiens (1982), Strong (1983), and Nystrom, Stringfield, and Miron (1984) represent documented examples of many practitioners' perceptions that the label of the program does not guarantee the language of instruction. Sapiens (1982) reported that although the high school civics teacher he observed used Spanish 45 per cent and English 55 per cent of the time, most instructional exchanges were in English. The two studies conducted as part of the longitudinal national study

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to investigate immersion and early or late exit bilingual programs (Ramirez, Yuen, Demay and Merino, 1986; Ramirez and Merino, in press) used sites in which well articulated bilingual programs were under operation. Strong (1983), on the other hand, studied a very small sample ($N = 10$) of both Spanish and Chinese bilingual classrooms and does not report results separately by language group. The supply of proficient bilingual Chinese teachers is even more limited than for Spanish and this may have resulted in reduced expectations for how the primary language can be used in the classroom. Moreover, he studied third and fifth grade classrooms, which tend to reduce the amount of L1 being used. Finally, his method for data collection involved using three separate clocks, one for each language and one for silence, while reviewing audio or videotapes. Ramirez *et al.* (1986), however, also used audio, and they report 51 per cent use of Spanish and 48 per cent of English for teachers at the third grade, in late-exit bilingual programs and 52 per cent use of English and 47 per cent of Spanish for students. Thus, while grade can clearly have an effect as shown by Ramirez *et al.* (1986), it may be that the bilingual classrooms studied by Strong were simply less committed to the use of L1. Nonetheless, it is clear that in the future, policy makers and researchers cannot assume that the primary language of the students is used unless this use is verified through classroom observation. It is worth noting that in the national, longitudinal study of immersion and bilingual classrooms conducted under J.D. Ramirez' direction, it was the researchers who insisted on including classroom observations as part of the design (see Table 5.2).

Regarding language of instruction and pedagogical function, it is of greater interest, of course, to investigate not simply how much the primary language is used but *how* it is used. In several studies, the analysis of language use in different program models has focused on the issue of specific functions. In most studies the functions have been generated on the basis of second language acquisition or teacher effectiveness research. Thus, Politzer (1980) focused on six kinds of teacher functions: modeling, questioning, commanding, explaining, correcting, and reinforcing. Reflecting the influence of Asher (1969), commanding and modeling were coded with a variety of possible modalities: verbal, visuals, objects, or physical response. Ramirez *et al.* (1986) used the same basic functions, although they collapsed correcting and reinforcing to one category, labelling it 'feedback'. Each one of these categories was then further sub-divided. Explanations, for example, could focus on procedure, on concepts, on labels, or on rules. As can be seen in Table 5.3, explaining, questioning, and commanding are the predominant functions for teacher talk in several studies. Ramirez and Stromquist (1979) report less incidence of explaining and a greater incidence of modeling. Ramirez and Stromquist (1979) asked teachers to teach four lessons related to certain grammatical concepts (e.g., the use of comparative adjectives). Thus, these lessons were possibly skewed to be more like traditional language lessons, with greater use of modeling.

Program comparisons by function are possible in some of these studies. Ramirez *et al.* (1986) report no significant difference in function across programs when teacher utterances are pooled across languages, although commanding tended to be more prevalent among late-exit bilingual programs at kindergarten. These results echo findings from other comparisons of teacher behaviors across programs in non-minority settings, where immersion programs have been compared to monolingual classrooms in Canada (Hamayan and Tucker, 1980). That

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Table 5.3: Teacher as focus: functions of teacher talk

Study	Grade	Context	*N* (teachers)	Results
Legarreta, 1979	K	Bilingual	5	Structuring and questioning predominate
Ramirez, Yuen, Ramey and Merino, 1986	K-3rd	Bilingual + Immersion classes	72	Explanations are predominant in all programs. Questioning and commanding fluctuate in second place.
Ramirez and Merino, in press	1st–2nd	Bilingual Immersion	37 Immersion 39 EE 27 LE	Questioning predominates in Immersion, EE and LE with commanding second; behaviors are comparable in bilingual programs.
Ramirez and Stromquist, 1979	1st–3rd	Bilingual	18	Modeling, explaining, and questioning predominate but vary in prominence by teacher

Note: EE = Early Exit; LE = Late Exit.

is, teachers in both program models tended to manipulate questioning, reinforcement, and error correction in similar ways. These studies further suggest that teacher classroom discourse, at least when analyzed broadly, tends to be similar across program models in North American settings. Ramirez *et al.* (1986) coded for four different kinds of explanations: procedures, concepts, labels, and rules. The most common type of explanation was procedural (ranging between 57 per cent to 65 per cent), followed by concept explanations, which constituted almost a third of all explanations. Explanations of grammatical rules were very rare and explanations for labels reached their highest level at first grade in both immersion and early exit bilingual programs.

In one of the few studies of Chicanos in a high school bilingual program, Milk (1980) observed teacher behavior in civic classes and found that elicitations and informatives — in a near even split — accounted for almost half of the teachers' discourse with student replies as the next most frequent behavior (19 per cent). Thus the patterns of classroom talk with older Hispanic students appear to display a similar trend to young students. Teacher talk dominates classroom discourse at all levels. (See Table 5.4 for an overview.)

Process/Process Studies

Studies that have sought to establish how particular classroom behaviors affect other classroom behaviors have been labelled 'process/process' studies. In this tradition, researchers have investigated the nature of teachers' and students' language use patterns in the classroom and how they may affect each other. Cases in point are Gaies (1977) and Chaudron (1979) who found that teachers adjust the complexity of their speech to ESL students on the basis of the students' proficiency. Holley and King (1971) reported that increasing the amount of wait time when asking second language students a question, increased the number of correct responses. Table 5.3 provides an overview of this research in relationship

Table 5.4 Teacher as focus: amount of teacher talk

Study	Grade	Context	*N* (teachers)	Comparison Group	Results
Legarreta, 1977	K	Bilingual classes	5	Concurrent translation v alternate day	Greater use of English in some concurrent. Teacher talk dominates discourse (70%–89%).
Enright, 1984	K	Bilingual classes	2	Smaller group v whole class	No difference. Teacher talk dominates (62%–84%).
Ramirez, Yuen Ramey and Merino, 1986	K-3rd	Bilingual and immersion classes	70	Across programs and grades	Teacher talk dominates (60%–80%) in L1 and L2, except in immersion with Spanish
Hernandez, 1981	1st–3rd	Bilingual	8	Teacher v student	Teacher dominates 62% v. 38% for students

Note: K = Kindergarten.

to Chicanos. First we will discuss research that explores classroom process in relationship to the proficiency or ethnicity of the learner. Then, we will focus on research that relates teacher behaviors to student output.

Schinke-Llano (1983) found that some teachers in elementary classrooms in Illinois treat fluent English-speaking Anglo students and Hispanic limited-English-proficient students differently, for example, addressing fewer academically oriented utterances to the limited-English speakers. This differential pattern of teacher interaction has also been documented in a large scale study of teacher interaction with Chicano and Anglo students (US Commission on Civil Rights, 1973). Chicano students were addressed and praised less and their ideas were incorporated into the discourse of the classroom less frequently. No data were provided, however, on the language proficiency of the Chicano students. Laosa (1979), however, investigated both ethnicity and proficiency and their effects on teacher behaviors. He studied fourteen kindergarten and second-grade classrooms and observed targeted sets of pupils who were matched on social educational status but differed in ethnicity and proficiency. He found that these teachers were not affected by the ethnicity of the students but did tend to direct greater numbers of disapprovals to Chicano limited-English-proficient students.

Ramirez and Merino (in press) investigated the functions of teacher speech in relationship to the language proficiency of the student groups in 103 first-grade and second-grade classrooms in structured immersion, early- and late-exit bilingual programs. Using a real time category system based on their earlier audio sign system, they coded teacher utterances directed to limited-English-proficient (LEP) students, fluent-English-proficient or English only students (FEPs/EOs) and mixed groups. They then tabulated the percentage of behaviors that could be classified in any of the following categories: explaining, questioning, commanding, modeling, feedback, monitoring and other. Explaining and commanding were the only two behaviors directed to LEPs that differed in their distribution by program by a margin of at least 10 percentage points. In the first-grade late-exit programs, teachers tended to command more, and explain less than in the immersion and early-exit bilingual programs. This tendency to favor commanding also appeared more frequently in the behaviors directed to the FEP/EO first-grade students in both early-exit and late-exit bilingual programs as well as in first-grade students in mixed groups in the late-exit bilingual program. Immersion students in mixed groups were also more likely to receive explanations than students in the bilingual programs. Differences by program did not appear at the second grade. Within programs, differences in explanations were also noted. In all instances except in late, exit bilingual first-grade classrooms, explaining was a more frequent behavior when teachers addressed mixed groups than when they addressed LEPs or FEPs/EOs by themselves. Because the coding relied on a pragmatic protocol (that is, classification of a behavior was based on its function and not simply surface structure), these differences should not be due to stylistic differences in English or Spanish nor in the teachers themselves.

The greater use of commands has been noted in teachers with large numbers of working-class students (Wilcox, 1978). The large use of commands, however, is also typical of certain second language teaching methods such as the Total Physical Response (Asher, 1969). The reasons teachers used a higher amount of commands in the bilingual late-exit program may be conscious, based on pedagogical intent or unconscious. In future research the processes by which teachers

organize their behavior in the classroom should be investigated, using the techniques of Shulman (1987) or ethnographers such as Trueba (1987) and van Lier (1988).

It is clear that when addressing students of a mixed level of proficiency, teachers provide greater numbers of explanations. Chaudron (1982) has investigated the nature of these explanations in a second language context. He found that teachers paraphrase as well as provide definitions and examples to make their explanations more meaningful to second language speakers. Explanations may be especially necessary in immersion programs in which little Spanish is used.

These differences in patterns of behavior by program and by proficiency and ethnicity of the student need to be further investigated through more qualitative approaches that use ethnographic techniques and discourse analyses. Carrasco (1981) in an ethnographic study, has shown that even a well intentioned, bilingual Chicana teacher had misdiagnosed and subsequently ignored a Spanish-speaking child in her classroom. What factors contribute to the failure to select certain students? How can teachers be trained to recognize inequities in the distribution of student turns? Project EQUALS (Los Angeles Unified School District, 1978) attempts to address some of these concerns by training teachers on peer observation that focuses on allocation of turns. Teachers also need training in providing a greater variety of formats for student response, addressing not only the linguistic but also the cultural needs of the students.

In a second language context, researchers have dedicated considerable effort to identifying how teachers in the classroom, and native speakers outside of it, informally modify speech and interaction patterns when speaking to second language speakers (see Chaudron, 1982, 1988 for reviews). Factors such as simplicity and frequency have been investigated using a variety of approaches. Much of this work, however, is still exploratory in nature. That is, most of this type of research has been conducted mainly with adults in foreign language settings where teachers are usually the only source of input and almost all studies are cross-sectional, conducted at one point in time, rather than longitudinal. Moreover, the aim of most of these studies has been to describe classroom discourse in relationship to the context or the proficiency of the learner and not so much to explore its consequences for students from different cultural backgrounds.

Some studies have focused on the relationship of classroom variables in second language classrooms as they affect student behaviors that are conceived as precursors of eventual student achievement. Some of the behaviors that have been investigated include: student engagement or on-task behavior (Nerenz and Knop, 1982; Tikunoff and Vazquez-Faria, 1982), student perceptions of effectiveness (Moskowitz, 1976; Omaggio, 1982), or student output as it is affected by teacher behaviors, group structure, task characteristics or combinations of these (Cathcart, 1986b; Ramirez and Merino, in press). The fundamental importance of these types of studies is that they strive to understand the process of teaching as it proceeds rather than focusing on the product at the end of the process.

How teachers use the students' time, how successful they are at maintaining students engaged with the academic curriculum, and the method of instruction are the three cornerstones that differentiate effective from ineffective teachers, according to Medley's (1979) review of 289 empirical studies on teacher effectiveness on mainstream classrooms in the United States. Research in second language

classrooms with student engagement as a focus is rare. Nerenz and Knop (1982), in an exploratory study, discuss the data collection techniques for this type of research, offering a few examples from a foreign language context. Tikunoff and Vazquez-Faria (1982) using the construct of student engagement, studied fifty-eight 'superior' bilingual teachers at the elementary level in the United States. These teachers were considered effective because: 1) they were nominated by teachers, administrators, parents and students as superior teachers, and 2) they were able to produce high rates of student engagement in their classrooms. The instructional features shared by these classrooms were then identified to generate a template of effective instruction in bilingual classrooms. As outlined by Garcia (1986), the organizational features of effective instruction include: 1) students being instructed as a single group or in small groups for nearly equal portions of the school day; 2) the most common substructure activity consisting of two-thirds of the students working directly with the teacher in a recitation activity; 3) student work on academic tasks was independent 90 per cent of the time (and did not require cooperative work). Successful teachers were described as successful communicators. They could specify task outcomes clearly as well as the necessary steps to complete them. They communicated high expectations for learning and a belief in their own ability to teach. They were clear when giving directions and presenting new information. They promoted student involvement by pacing instruction, monitoring students' progress and expecting success.

The above features are not viewed as unique to bilingual settings. Features that were unique to the bilingual setting included (Garcia, 1986): use of two languages (English for 60 per cent of instruction and the native language by itself or in combination with English 40 per cent of the time.); the use of 'integrative activities' that develop second language skills as a by-product of instruction in a contextualized task and instructional practices that took advantage of students' cultural background. Home and community culture were incorporated through 1) using cultural referents to communicate instructions, 2) observing discourse patterns of the native culture, and 3) respecting the values and norms of the native culture. This study used ethnographic techniques in combination with traditional approaches of classroom observation, thus complementing the strengths of the two methodologies. It also shows, however, some of the weaknesses of the two traditions. Researchers are more likely to observe what they are attuned to. Cooperative work and non-teacher-fronted tasks were rare in these teachers' classrooms. Yet, recent research on the role of learner talk (Swain, 1985) and the positive influence of carefully designed group work (Cathcart, 1986b; Cohen, 1986) suggests that less direct control by the teacher may be particularly effective in promoting second language acquisition. It may be that these teachers are effective because they maintain student engagement and that in the instructional techniques available to teachers at the time of this study, the most prevalent approach to do so, was through tight teacher control. It would be a mistake, however, to assume that tight teacher control is essential to more effective teaching. We turn now to a discussion of research which has investigated the role and promotion of learner talk and autonomy.

The notion that learners will learn to speak by speaking — much as learners of reading and writing improve those skills by using them — has remerged in the second language acquisition literature as proposed by Swain's (1983) theory of 'comprehensible output'. She proposes that when 'there has been a communica-

tive breakdown' and learners are pushed to deliver 'a message that is not only conveyed, but that is conveyed precisely, coherently and appropriately ... [they are pushed] beyond semantic processing to syntactic processing' (p. 19), and as a consequence to greater levels of proficiency. Learners are most likely to experience this kind of pressure in interacting with native-speaking peers. As documentation for this hypothesis, she offers the failure of immersion programs in Canada to produce learners who can compete with native speakers in speaking proficiency. Students in Canadian immersion programs interact in a community of speakers that accepts messages that are clear but not necessarily formally correct.

What kinds of situational and teacher variables lead to high student verbal output? Researchers have investigated this question from a variety of perspectives. Cathcart (1986a, 1986b) sought to identify situations, speakers, and tasks that lead to greater amount of student talk. Through the observation of small numbers of targeted Spanish-speaking kindergarten children (four in one study; eight in the other) over the span of a school year, she found that there was a greater number of student turns when talking to peers than when talking to adults (even in informal situations). Learners were more likely to be pushed to their limits of syntactic complexity by some tasks, for example, when complaining at recess. Requests for action tended to vary in length and complexity depending on the interlocutor and whether that task was in progress or under negotiation (Cathcart, 1986b).

In a more teacher and classroom centered approach, Ramirez and Merino (in press), sought to identify variables that lead to high student output in bilingual and immersion classrooms. Using multiple regression techniques they found that teacher explanations and presentations as well as teacher monitoring and seatwork, resulted in lower student verbalization, while teacher referential questions, drill, and academic content such as science and art resulted in higher student output. Referential questions have been defined in opposition to display questions. Display questions are those in which the student is asked to display previously learned information (e.g., 'What is two times two?'). Referential questions ask for new information (e.g., 'How are you feeling today?'). Referential questions constituted about a third of all questions when pooled across English and Spanish and tended to be most frequent in English (41 per cent) in the early-exit bilingual program at the first grade. Long and Sato (1983) reported that referential questions were rare in the classroom discourse of six ESL lessons for adults but in the majority (76 per cent) in informal native to non-native speaker conversations. This type of question is, by its very nature, communicative and designed to elicit genuine information. It is not surprising then, that it should be so successful in generating student verbalization.

It should be noted that student verbal output appears to be a behavior that is highly influenced by cultural background and home discourse patterns. Philips (1972) found that among Warm Springs Indian children and adults in Oregon, self nomination — particularly in a large group — is considered inappropriate. Sato (1982) analyzed the number of self-selected turns in two adult ESL classes. She found that Asian students (although in the majority) initiated classroom discourse less often than Latin American, European and Middle Eastern students. Differences in interaction patterns may also exist within Asian cultures. Duff (1986) compared pairs of Chinese and Japanese students on a convergent

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task (problem solving) and a divergent task (a role-played debate). Students were matched for sex, age, proficiency in English, class standing and length of residence in the United States. Chinese subjects dominated 66 per cent of the total number of words and took over a significantly greater number of Japanese turns. Although no cross-cultural research on turn taking is available on Chicanos, there is an extensive literature on Chicano and Anglo dyads and cooperative-competitive behaviors. Kagan (1986), in a synthesis of this research, documents a preference for cooperative task structures among Chicano and Mexican children. This preference was evident in all the Chicano students that he studied but more pronounced among rural, Mexican children. Research that explores patterns of interaction, turn taking in different types of tasks, and the type of language produced in these contexts needs to be conducted among Hispanics, from a variety of backgrounds.

Finally, there is one very provocative ethnographic study on classroom peer interaction, where Chicano learners were the focus, that offers insights about how students perceive the world of the classroom. Delgado-Gaitan (1987) studied Chicano students at home and at school in a San Francisco Bay area community. She found that the teachers' and students' perception of classroom process sometimes differed substantially. Thus, for example, while the teacher perceived as 'cheating' those students who offered assistance to other students while working in a workbook, in the students' view this constituted a logical extension of the cooperative behaviors that were expected at home. It is clear that with all children, but particularly when children of different cultures interact, it is essential to understand students' and teachers' perceptions of classroom dynamics and their relationship to home patterns of socialization. It is unfortunate that there are such few ethnographic studies of Chicanos interacting in the classroom process, for this methodology can do much to enrich our understanding of why students and teachers interact the way they do.

Process/Product Studies

Studies that seek to identify how particular classroom processes affect the learning outcomes of students have been termed 'process/product' studies. The central question in these studies is: What classroom processes actually lead to higher student achievement? Usually the outcome or product has been student achievement, defined as performance on standardized tests (Mace-Matluck, Hoover and Calfee, 1984), oral tests of production and comprehension (Ramirez and Stromquist, 1979), or less frequently, accuracy in morpheme production (Hamayan and Tucker, 1980). More recently, the focus has been on comprehensibility as measured by comprehension tests (Speidel, Tharp and Kobayashi, 1985) and self-rating scales of understanding (Long, 1985). In discussing these studies, it is particularly important to consider the context and data collection procedures used because these factors affect their generalizability. Two basic approaches have been used. In one the focus is the learner; in the other the focus is the teacher interacting with the learner. The latter approach has had a longer tradition and will be discussed first. (Table 5.5 provides an overview of studies conducted with Chicanos.)

Teachers interacting with learners has been one area of research focus. In a

Table 5.5 Learner as focus: process product

Study	Grade	Context	*N* (teachers)	*N* (students)	Results
Strong, 1983	K	Bilingual	1	13	Responsiveness (R), Gregariousness (G) and Talkativeness (T) correlated with vocabulary. R and T with grammatical structure, R with pronunciation
Ramirez and Stromquist, 1979	1st–3rd	Bilingual	18	141	Explaining labels, lesson pace, overt correction related to gains.
Johnson, 1983	Bilingual summer prog. 5th–9th	Peer tutoring 7 weeks	1	8 NS — NNS	Student receiving peer instruction improved in comprehension.
Wong-Fillmore *et al.*, 1985	3rd–4th	Bilingual	13 Gr. 3 4 Gr. 4	556	Adjusting complexity of language, encouraging student participation, effects on gains.
Hoover, Calfee and Mace-Matluck, 1984a	K-4th	Bilingual and monolinguals	49	378	Formal language demands, use of primary materials requiring engagement with text resulted in gains in reading.

Note: NS = Native Speakers, NNS = Non-Native Speakers

study conducted under Politzer's direction, Ramirez and Stromquist (1979) videotaped eighteen bilingual elementary classroom teachers teaching four ESL lessons to limited-English-speaking Chicano students between first and third grade. They sought to relate student gains to specific teacher behaviors. Included among the behaviors that were strongly related to student gains in production were: 1) requiring students to manipulate concrete objects following a teacher command, 2) questioning students regarding information previously presented by the teacher, 3) explaining the meaning of new words, 4) correcting students' grammatical errors directly by providing the correct structure, and 5) varying the type of teacher behaviors. Modeling and correction of pronunciation errors were negatively related to student gains. Multiple regression analyses showed that explaining labels as well as overt correction of pupil errors significantly affected performance in oral English production. These behaviors, as well as the pace of the lessons as measured by the frequency of the utterances, significantly affected comprehension. This study represents the first time that specific teacher behaviors were linked with student achievement in a bilingual setting in the United States. It has been influential in supplying a methodological approach for subsequent studies. Because, however, it involved teaching pre-specified lessons on particular grammatical points and not teaching in more naturalistic situations, thus there are some limits to its generalizability to other contexts. Moreover, this type of design only indicates that certain behaviors co-occur with achievement, not that they cause it.

A more naturalistic study was conducted by Wong-Fillmore *et al.* (1983), who looked at classroom processes in thirteen third- and four fourth-grade classrooms in which a mixed group of Hispanic and Chinese limited-English proficient students were enrolled. Half of the classrooms were defined as bilingual. Classroom process was audio taped and ratings were made on a variety of instructional features as well as teacher-student interactions. Although the use of a rating system for coding classroom behaviors is difficult in a research context because of issues of interrater reliability (Long, 1983), the use of audio tapes somewhat mitigated these effects. In this study, growth in English language development was affected by individual differences in the learner. Students who started the treatment with no proficiency in English experienced the most growth with teachers who promoted high levels of teacher and peer interaction. Classroom processes differentially affected students from the two ethnic groups. Hispanic students experienced the most growth in oral English production in classrooms that provided many opportunities to interact with English-speaking peers while Chinese background students fared best in classrooms in which teachers directed instruction. Other classroom features important in promoting growth included adjusting the complexity of language, encouraging student participation, and highlighting English language structure while using it. It is important to recall that the range of L1 use in the bilingual classrooms studied was very low, from 0 to 22 per cent. Thus, this study more properly relates to effective second language teaching techniques. It is an important investigation, however, because it begins to explore the effectiveness of instruction among different kinds of students. This study, moreover, is also correlational. Future research should manipulate teacher or peer centered teaching with other Hispanic and Chinese background students to determine the exact nature of this effect. Furthermore, if it is the case that Chinese background students participate in a

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more competitive manner in peer instruction (Duff, 1986), such a grouping structure may require additional training in cooperative learning to be successful with Chinese students.

The learner as focus is another tradition of research investigating classroom process and learner outcomes. Such research has focused on the manipulation of peer instruction (Johnson, 1983), on individual interaction patterns in the learner (Chesterfield, Chesterfield, Hayes-Latimer and Chavez, 1983; Strong, 1983) or on the interactions of targeted students in specific areas of the curriculum (e.g., reading and language arts), and eventual gains in proficiency (Hoover, Calfee and Mace-Matluck, 1984a, 1984b; Ramirez and Stromquist, 1978). In this type of study, target children are the focus of observation.

Several studies have investigated whether student production by itself leads to greater proficiency in the learner. Johnson (1983), compared the proficiency of a group of 5 to 9-year-old LEP children receiving peer instruction to that of another comparable group receiving instruction by the teacher over a five-week period, adjusting posttest gains on the basis of pretest performance. There were no significant differences between the groups in oral production (as measured by the Language Assessment Scales [LAS], DeAvila and Duncan, 1977), but the peer instructed students performed better on one measure of comprehension. Chaudron (1988) suggests that the short period of treatment and the wide range in ages could have limited positive effects. An additional factor might have been the use of the LAS which is designed to be a quick screening measure for program placement and is thus less likely to be sensitive to finer increments in proficiency.

Chesterfield *et al.* (1983) followed eleven Spanish-speaking preschool children enrolled in two different bilingual programs in Milwaukee and Corpus Christi over one year using ethnographic techniques. They concluded that interactions with peers were more consistently related to increases in proficiency in classrooms where English-speaking children predominated, while interactions with teachers led to greater gains in proficiency in classrooms where Spanish-speaking students predominated. Gains in proficiency were judged on the basis of increases in the average number of morphemes per utterance in spontaneous speech (MLU), which is a rough measure of grammatical complexity. This study is suggestive of how the psycholinguistic environment in the classroom may result in a differential pattern of effects. This study must be interpreted, however, with a great deal of caution, because a great number of other variables could be confounding the results. The children in Milwaukee had virtually no proficiency in English when the period of observation began, while five of the six children at Corpus Christi began the year with some proficiency in English. The children in Milwaukee made greater gains but one child in Corpus Christi who also started with no proficiency also made greater gains than any of them. There were three classrooms in Corpus Christi and two in Milwaukee. The Texas classrooms encouraged separation of Spanish and English, while the Milwaukee classrooms favored concurrent use of both languages. In both settings, particularly at the beginning of the year, teachers were the principal source of input to students.

Teachers' language use patterns changed to greater use of Spanish over three observations conducted throughout the year for four of the children in Milwaukee and five of the children in Texas. In some cases these fluctuations were dramatic, going from 61 per cent to 23 per cent for José in Corpus Christi and from 56 per cent to 12 per cent for Javier, for example. In another case, Ramona,

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they went from 40 per cent to 90 per cent and then down to 27 per cent. In addition to the classroom variables, it is important, however, to consider the effect of the two communities on language use patterns in general. Texas communities that are close to the border with Mexico display very different roles for Spanish than would an urban center in the Midwest, such as Milwaukee.

In another longitudinal study of young children's interaction patterns, Strong (1983) focused on social variables (responsiveness, gregariousness and talkativeness) and their relationship to gains in grammatical structure, vocabulary, and pronunciation. Strong found that responsiveness, as measured by the number of responses to other children, correlated with gains in control of structure, vocabulary and pronunciation, while gregariousness (the amount of talk to different children) and talkativeness (total talk) had a significant relationship with at least one measure of proficiency. In this study, it was not interactions with English speakers that affected proficiency but rather a general pattern of responsiveness that often was directed to other Spanish, speaking children.

Ramirez and Stromquist (1978, 1979) found that the six highest achieving ESL teachers in their study (when compared to the four lowest achieving teachers in the production test), had significantly more total student replies, repetitions and comprehensions, as well as greater repetitions with objects and greater comprehending behaviors with visuals. This study adjusted for pretest differences in the students, thus establishing a more direct link between classroom process variables and student gains. In the high achieving classrooms, the learner profile that emerges is one in which the student is actively engaged through a variety of approaches, replies, repetitions, and physical responses that indicate comprehension. Moreover, these responses often are combined with realia, in the form of objects or visuals.

These studies suggest that increasing students' opportunities to use language will result in greater language proficiency. A critical limitation in this research, however, has been the failure to investigate whether participation in tasks in which students must negotiate with the language improve proficiency. This question has largely been explored in process studies only.

Another approach to the study of learner interaction patterns and their effects on learning outcomes has been to focus on targeted children as they develop a skill over time. Such a design was used by Mace-Matluck and her associates (1984) in a cross-sequential study of bilingual and monolingual Spanish- and monolingual English-speaking children learning to read in Texas and northern Mexico. A total of 378 children constituted the sample, entering the study at various points in four different cohorts, beginning at either kindergarten or the first grade and followed from two to five years. A total of forty-nine classrooms from three Texas border sites — one each from central and eastern Texas and one from northern Mexico constituted the initial sample. Although, as students were reassigned to other classrooms, their classes were added to the sample. Students were selected to represent a variety of cognitive styles, along the dimensions of field dependence/independence and reflectivity/impulsivity, as well as varying degrees of proficiency in the two languages for the bilingual sample. Extensive data on the development of oral language and reading skills were collected as well as periodic classroom observations (five a year). The Reading and Mathematics Observation System (RAMOS; Calfee and Calfee, 1978) was used to collect classroom process data. This instrument uses a real time sampling format. The

observer at the beginning of the observation records the status of classroom activities and their participants under each RAMOS category, and from that point until the end of the observation, changes in status are noted as these occur. Classroom organizational elements (i.e., who is delivering instruction as well as the content of instruction and responses of the students), are the principal categories of the system.

Data are reported for the bilingual sample in terms of mean percentages for all sites together, separating English and Spanish instruction by year (Hoover *et al.*, 1984a). This approach makes interpretation somewhat difficult, because data from several grade levels, sites, and programs are collapsed, although data from the later years represent higher grade levels. In the first three years, when the largest numbers of students were observed, the number of bilingual students actually receiving instruction in Spanish ranged from 62 to 73 (22 per cent to 32 per cent) in contrast to the number receiving English instruction which ranged from 140 to 244. This represents Texas educational policy current at that time, where Spanish reading instruction was most likely to occur in the border sites even within bilingual programs and where in some programs bilingual students were exited from Spanish reading after one year. In English, reading instruction emphasized letter sound unit correspondence from 49 per cent to 57 per cent of the time for the first three years; teaching focused on word-unit meaning occurred much less frequently (9 per cent to 7 per cent) and sentence text meaning increased after the first year (from 9 per cent to 28 per cent). Standard deviations for each category, however, were quite large indicating that there was a great deal of variability in classroom practice. This allocation of time by activity reflects a natural progression as students shift from decoding to comprehension skills. Most of the time students were found to be listening and responding in groups rather than working individually, although there was a gradual shift towards individual work from year to year. Patterns were very similar in Spanish, although there was greater emphasis on word unit meaning instruction. Individual categories from the observation system were collapsed into seven factors that were used in subsequent analyses. These factors accounted for 57 per cent of the variance as follows: emphasis on reading instruction, or engaged text time (10.3 per cent of the variance); direct group instruction (8.5 per cent); quality of formal language, emphasis on analytic strategies (7.4 per cent); amount of decoding instruction (6.3 per cent). There were two additional factors (which the authors admit are oversimplifications): productivity and secondary materials and the final one which they labelled as the number of students. Finally, when these factor scores were integrated with the reading achievement and language scores, English entry skill and English entry literacy skill were the most highly associated with exit skills. Literacy skills were related to instruction that makes strong formal language demands on students, employs primary materials, and fosters student engagement with text. Growth in vocabulary and comprehension was advanced by increased amounts of time devoted to those skills. Decoding skills, however, showed the opposite relation. The authors speculate that it may be due to the low quality of such instruction in the data set, in that decoding instruction tended to be non-explicit. Instruction in Spanish reading had low negative correlations with reading growth, but this relation seems to have been confounded with initial oral skills in English and is reduced when these are factored in. Students with higher levels of oral English skill were typically not

placed in Spanish reading. Moreover, by the fourth year it appears that students who have had Spanish reading throughout this period had higher reading growth in English than those who had limited exposure. Finally, group size appeared to have had no relation to growth, and direct instruction was negatively related to gains in literacy. The authors speculate that the negative relationship of direct instruction may have been due to providing such instruction in large groups. In Spanish, partial correlations between instructional factors and reading growth were lower, although quality of decoding instruction and formal language demands in instruction were positively related to growth. It should be noted that partial correlations between instructional variables and growth were typically low (in the .20 to .40 range).

This study represents a unique attempt to connect systematically the impact of instruction on growth in literacy skills in bilingual students through a longitudinal approach. Observation was frequent and data were collected over a five-year period in a variety of sites. Observation focused on curriculum specific behaviors that were relevant to the teaching of reading. Unfortunately, no formal interrater reliability studies were conducted on the observation procedures, although training continued every year of data collection. Other serious problems that were out of the control of the researchers, were: a) the failure to provide instruction in Spanish reading at several sites, b) a sampling bias that provided Spanish reading instruction largely to those with the lowest English skills, and c) an exiting of the more successful Spanish readers very quickly to an English only program. Moreover, as the number of classes increased when students were reassigned to new teachers after the first year, the influence of the instructional variables were probably reduced. This may have contributed to the relatively low relation of instructional variables on learner growth. Furthermore, the failure to use instructional categories that focused on adjustments made for teaching second language speakers to read in English and to more carefully focus on specific behaviors (such as questioning and feedback techniques) probably reduced the ability to discriminate between poor and effective instruction.

Group structure, classroom process, and curriculum present one other type of investigation. Naturalistic studies of classroom process as it proceeds under the teacher's direction and local school pressures, comprise the vast majority of classroom research with Hispanic children. While this approach captures what teachers and students do in classrooms, it limits findings to practices currently in vogue and often reflects local resistance to mandated changes of instructional practice. Thus, given the negative climate towards bilingual education in the United States in the early 1980s, it does not seem so surprising that in the two recent large-scale studies of bilingual classrooms (Wong-Fillmore *et al.*, 1983; Mace-Matluck *et al.*, 1984), the use of the first language as a medium of instruction was so rare. Similarly, in spite of the fairly conclusive research evidence that teachers should involve second language speakers in peer-focused, jointly negotiated, problem solving tasks with direct manipulation of materials (Long and Porter, 1985), teachers continue to adhere to participant structures where they are in control of classroom process and dominate teacher talk when there is talk (Ramirez and Merino, in press). Alternatively, much instruction in elementary classrooms with limited-English proficient children is conducted in silence, through individualized group structures (Strong, 1983).

Recently two instructional reform efforts have been launched to trigger the

use of peer-focused, active problem solving in bilingual classrooms. In the first of these efforts, *Finding Out/Descrubrimiento* (DeAvila and Duncan, 1980) which is a science/math curriculum for second to fifth graders, students work in activity centers using a cooperative approach. The organization of group work in the implementation of the curriculum has been a primary focus. Cohen, DeAvila, and Intili (1981) and their associates have sought to train teachers and their students to rethink their traditional roles, with students taking greater responsibility for their own learning and that of their peers. Individual students are responsible for their own worksheets and are assigned tasks. They must also make sure that any one in the group who needs help gets it. Specific roles (facilitator, checker, and reporter) are assigned to students to facilitate the active engagement of all the students. Materials for the centers are presented bilingually and children with different levels of proficiency in English and Spanish and different types of skills are grouped together in heterogenous groups.

Students instructed through *Finding Out/Descubrimiento* in a cooperative group structure made significant gains in oral proficiency in English and these gains were most pronounced in children who started out with low proficiency in both languages (DeAvila, 1981). Neves (1983) observed a subset of these children with varying degrees of proficiency and found that the more the monolingual Spanish-speaking children spoke about the task the greater their gains were in English. Much of this talk was conducted in Spanish, but frequently there was interaction with bilingual and English dominant children. Gains were also apparent in standardized tests of math and reading when compared to national norms (Cohen *et al.*, 1981). Cohen (1986) notes that teachers who had difficulty delegating authority and who had supervised and controlled student work too closely did not have gains as large as those who consistently required students to rely on each other. Navarrete (1985) made videotapes of student interaction in one second-grade classroom implementing the curriculum and found that students who engaged in a complete cycle of joint problem solving made the greatest gains. In such a cycle, students sought help, got it and returned to their tasks.

In another curriculum reform effort, Coughran, Merino and Hoskins (1986) developed *BICOMP*, a bilingual science based, interdisciplinary computer assisted curriculum designed to implement a communicative approach. By the authors' definition, this approach required that all lessons involve the manipulation of materials in a problem solving task with peers. Teachers began the lesson with a contextualized demonstration, explanation, and dialogue that used visuals and realia to illustrate concepts and to engage the students in inquiry about their hypotheses. Demonstrations and experiments were designed to be so intrinsically interesting that they would stimulate student talk or comprehensible output (Swain, 1985). Students then began an active period of experimentation or manipulation in a small group. Kagan's (1986) research on cooperative groups and Long's (1983) on negotiation served as the inspiration for organizing group structure. Both convergent and divergent activities were used in the group activities. For example, at times activities involved setting up an experiment to see where the hottest temperatures in the school were; at other times students designed paper airplanes to investigate how paper moves through air. Students studied science lessons for one week in combination with computer lessons related to the science concepts. Limited-English-proficient students worked in pairs with fluent English speakers at the computer. On the second week, students

recycled the lesson concepts in art, math and language arts lessons, using the same themes and concepts for the science lessons. Thus, if the students had been investigating causes of hot and cold temperatures and how to measure temperature, they subsequently studied how artists use hot and cold colors in art. The development of the lessons was a collaborative effort between teachers and university-based researchers. Lessons were developed from prototypes by teachers from the participating schools and classroom teachers provided revisions for the lessons before and after they had implemented them in the classroom.

A variety of approaches have been used to determine the effectiveness of the curriculum. The first year of curriculum development was used to collect baseline data for a control; in subsequent years, posttest gains adjusted for pretest differences, language classification and attendance, were compared to the adjusted gains made by students who had received instruction through the curriculum in two subsequent years. Students made significant gains in reading, math and science achievement when instructed through *BICOMP*. Teachers and students were observed as they participated in the curriculum and as they interacted with each other at the computer. The positive effects were particularly pronounced in classrooms of teachers who were 'high' implementers. The teachers were observed through a real time observation instrument (Merino, Legarreta and Coughran, 1984). High implementers made greater use of referential questions, that is questions with a real communicative intent; had higher amounts of student involvement and were skilled at presenting concepts with a variety of visuals and manipulatives.

The research on classroom process and student gains among Chicanos is still very much in its infancy. Observational techniques are seldom replicated, making it more difficult to develop a consensus of what is indeed effective. High school settings and the Chicano who is not limited in English proficiency have been studied to a very limited degree (US Commission on Civil Rights, 1973). Ethnographic research techniques have seldom been applied to investigate classroom process. Several generalizations, however, can be made about the links between classroom process and Chicano students' achievement. It is clear that the selection of a site and community in which research will be conducted is a critical variable. There are many bilingual classrooms for Chicanos that use the label but are otherwise not very different from regular classrooms (Strong, 1983). Border communities function very differently from inland communities in their expectations for language use outside the classroom. Individual schools vary a great deal in the extent to which they create an atmosphere of positive expectations for achievement in the students and community involvement in schooling (Carter and Chatfield, 1986). It is possible, however, to discover effective bilingual classrooms, which are, in fact, delivering bilingual instruction.

What are these classrooms like? They appear to promote a high degree of student involvement (Ramirez and Stromquist, 1979; Strong, 1983;) as well as on task behavior (Tikunoff and Vazquez-Faria, 1982) which nonetheless does not require direct teacher control but is accomplished through grouping strategies and intrinsically interesting materials (Cohen, 1986; Merino and Coughran, in press). Classroom discourse is contextualized (Ramirez and Stromquist, 1979; Wong-Fillmore *et al.*, 1986) and cultural referents are frequent and give positive value to students' cultural background (Garcia, 1986; Tikunoff and Vasquez-Faria, 1982).

How unique are these findings to the Chicano community? In many cases, effective teaching techniques for limited-English-proficient students have been replicated with students of different cultural and linguistic backgrounds. Referential questions as well as on task behavior appear to be positively related to student gains with a variety of populations. In some cases, however, other ethnic groups do not seem to be affected in the same way Hispanics are. Wong-Fillmore and her associates (1983), for example, found that Chinese students functioned best in teacher- rather than peer-focused activities. Tang (1974) found that Chinese parents who wanted Chinese to be used as a medium of instruction in the schools had children who performed better in bilingual programs than those who did not. Spanish-speaking parents generally prefer bilingual instruction, yet not all of them do. Attitudinal factors in the community also need to be explored in identifying effective instruction.

Research and Policy Agendas for the Future

The principal lesson to be learned is that classroom process research — while messy and expensive — is worthwhile and can offer substantive lessons about ways of facilitating student growth. Three other secondary lessons for the researcher should be emphasized. First, almost all of the research conducted to date on classroom process and Chicanos is correlational. Certain behaviors appear to co-occur with growth or student talk but researchers need to manipulate target behaviors and see if these in turn yield greater student gains. Secondly, classroom process research in the traditional mold by necessity tends to focus on easily observable behaviors of low inference. Future research needs to rely on both traditional and ethnographic techniques applied concurrently to provide a more complete picture of classroom process. Thirdly, researchers need to focus on exploring individual differences in ability and attitude and their interaction with a variety of classroom processes. At what level of proficiency and in what kinds of tasks, for example, does negotiating with peers result in growth of proficiency?

The principal lesson for researchers is also for policy makers. Classroom process research should be an essential component of any future evaluation of any program for Chicano students. Recently (1988) California issued a request for proposal (RFP) for yet another evaluation of bilingual education services in the state.[2] The initial version of the RFP did not require classroom observation. Treatments need to be verified in the classroom as they are implemented. Policy makers also need to focus on tracing effects of particular classroom processes over the long term and not simply for one year or less. Merino and Lyons (1988), in a recent longitudinal study of bilingual students schooled in a model bilingual program in Calexico, followed students through the sixth grade. They found that the mean percentile ranks for these students ranged from the fortieth in English reading to the sixtieth in Spanish math. All but 20 per cent of the sample showed growth in percentile rank during the period of observation. Lower oral skills in English, lower reading skills in Spanish and birthplace in Mexico were important predictors in decreasing the chances of growth. Students displayed several different patterns of growth, some growing steadily every year, some pausing after a period of growth, some dropping and then increasing in growth, some simply dropping steadily every year, and yet others grew and then dropped in percentile

rank. For particular children, at particular points in their lives, different kinds of factors may be affecting growth. Future research needs to explore in greater detail these patterns of growth and the factors that contribute to them over time.

Perhaps one best way of illustrating a research agenda for the future, is to build some scenarios for studies that would seek to identify effective ways of organizing classrooms for Chicano limited-English-proficient students. What might be some of the essential elements of such studies? In outlining the first study, a manipulative one, we will cast it in modest terms as 'teacher research' in which the teacher is the researcher. This type of research could begin with one teacher by herself or in collaboration with a researcher or with another teacher, followed by many replications with other teachers. The first task would be to identify a theoretically-based range of treatments that are systematically manipulated. These should not be based on the language of instruction alone. Thus, for example, extending the hypotheses of Long (1981) and Swain (1985), what is the effect of providing opportunities for negotiating interaction v. simply producing language? What type of tasks lead to negotiation more easily? Extending the research of Delgado Gaitan (1987), what patterns of negotiating are seen at home and could be adapted easily to a school context? As an exploratory study, teacher/researcher teams could collaborate in peer observation through both traditional observation techniques as well as the ethnographer's methodology of the participant observer. In the context of the fluidity of the schools, the best way to operationalize a treatment is not simply to give guidelines for lesson development, but to actually develop curriculum that concretely illustrates the theoretical intent of the treatment. A time series design, within the same year or from one year to the next could compare the amount and complexity of the language produced by students as they are engaged in tasks designed to provide opportunities for negotiation (e.g., debates in pairs about a controversial issue), compared to tasks in which simple production of language is the focus (e.g., exploration and description in pairs about feelings, scary dreams). As ways of gauging effectiveness, process variables could be the focus: How much language is used? How complex is the language? How evenly are conversational turns distributed across languages and participants? How do these vary depending on the ethnicity and proficiency of the students? In addition, through ethnographic interview techniques, students' perceptions of appropriate ways of interacting, styles of discourse, and attitudes toward the tasks could be explored.

Another more expensive study (using the paradigms of Moskowitz, 1976, and Tikunoff and Vasquez-Faria, 1982), could explore the dimensions of superior teachers in comparable situations and in contrast to typical teachers. There are several existing large data bases of bilingual students across the United States. These could be the starting point for selecting teachers who have been unusually successful in developing student growth. How do superior teachers organize instruction? How do they use their expert knowledge to plan in advance and react in the classroom in order to implement effective instruction? Shulman (1987) and Berliner (1987) have begun to explore expert knowledge in monolingual teachers. Their approach in combination with ethnographic interviews of the students and teachers would be useful in identifying the types of behaviors that subsequently might be tested through systematic manipulation in teacher training programs. It is essential, however, that we recognize that teachers and students interact in a wide range of communities and schools. These vary along many

dimensions, some more critical than others. Thus, for example, the way Spanish and English are used in the community and in the school must be considered an integral component of how individual teachers can manipulate language use in the classroom. Addressing these and other important research questions in the very near future will help push a research-driven policy agenda ahead. Notwithstanding the nascent stage of our knowledge base, the promotion of school success for Chicanos inside bilingual classrooms can be demonstrated. Researchers, practitioners, and policy makers need to work together to make such successes occur on a much larger scale.

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